

REMARKS/ARGUMENTS

Reconsideration of the rejections of the Final Action is requested in view of the amendment and argument in the after-Final response, and the argument herein.

In the matter of the restriction requirement and withdrawal applied to the previously submitted claims 7-10, it is requested that this requirement be reviewed in view of the amendment to the claims and in view of the new claims which are presented, and in view of the discussion of the restriction requirement presented in the Remarks of the after-Final response.

An interview was conducted by telephone with Examiner Binda on May 12, 2003 to discuss the previously filed response to the final rejection (namely the Amendment Upon Final Rejection filed 3/2/03), and to determine if there is allowable subject matter. The Examiner noted that the introduction of method claims after the final rejection, wherein only the apparatus claims had been previously considered by the Examiner, is not usually acceptable. It was pointed out to the Examiner that the claims restore substantially the language existing earlier during the prosecution, so that essentially no new issues are being raised. Also, with respect to the Chinzei article cited for rejection of claims, the Examiner noted that the Japanese priority date beats the reference so that it should not serve as a basis for rejection of the claims. A translation of the priority document will be filed in due course to remove the Chinzei article cited for rejection of claim.

It was pointed out to the Examiner that, as noted in the beginning of the present specification, the present invention is useful in surgical assist robots as used in magnetic resonance devices, yet the art which was cited deals with basic mechanical structures. The Examiner noted that the claims recite virtually no features found in the type of robots that would be used for handling objects for magnetic resonance and therapy discussed at the beginning of the present specification.

A submission of claims with further description of the inventive features can be considered only by the filing of a continuation application or a request for continued examination (RCE) of the present application which has now been filed. By way of example, the Examiner indicated that it may be useful to provide claims which include magnetic resonance equipment in the preamble of the claim, and to show cooperation between elements in the body of the claim and elements mentioned in the preamble. In the absence of cooperation between elements in the body of the claim and elements of the preamble, the Examiner might treat the preamble as simply a suggested usage of the invention without actually limiting the scope of the search.

OK
10-24-03

The Examiner is respectfully requested to consider the Remarks made by applicant in the previously filed Amendment Upon Final Rejection filed 5/2/03, the telephone interview of May 12, 2003 and the following.

Important features of the present invention are that:

the position and the direction of axial rod (R) can be determined only by three linear motions of first spherical bearing or support (P_1) in 3D space and two linear motions of second spherical bearing or support (P_2) in 3D space or 2D plane. As an example, in the configuration of the robot, the mechanical body has 5 axes in total. All axes of it are driven by the linear motion mechanisms. Two bearing or supports (P_1), (P_2) are disposed between linear motion mechanism (driver). Bearing or support (P_1) is actuated by X_1 Y_1 and Z_1 by linear motion mechanisms. (P_2) is actuated by X_2 and Y_2 by linear motion mechanisms. In case of the robotic equipment, such as tool holder (not shown), for example, is attached at (P_1), (P_1) moves in 3D space and (P_2) moves in 3D space or 2D plane relative to (P_1). The position of the tool holder is determined by the position of (P_1). While the direction of the tool holder is determined by the direction of the line segment between (P_1) and (P_2), axial rod R, the direction of the line segment between (P_1) and (P_2), axial rod R, is determined by the position of (P_2). Therefore the position and the direction of the tool holder, for example, are determined only by linear motions of (P_1) and (P_2). Mathematically, it is a polar coordinate system with origin at (P_1).

Since the linear motion of the mechanism can be achieved rather simply, a link mechanism to determine a position and a direction of the robotic equipment can be excellent for MR compatibility in the practice of the present invention.

New claims 11 and 12 are presented for inclusion of the environment of the manipulator of a robot for surgical assist apparatus in the presence of magnetic resonance equipment, along with cooperation between elements of the robot to accomplish the surgical assist. Such cooperation is not taught in the cited art of the Final Action. Furthermore the methodology of claim 12 is dealing with subject matter sufficiently similar to that of the apparatus of claim 11 so that the inventions of both of these claims are believed to be close enough to avoid a restriction requirement between claims 11 and 12. Accordingly claims 11 and 12 should be allowable. Claims 13-16 provide further mathematical details in the description of the invention so as to facilitate distinguishing between the present claims and the cited art.

In the event there are further issues remaining the Examiner is respectfully requested to telephone attorney to reach agreement to expedite issuance of this application.

All of the claims are believed to be allowable in view of the foregoing argument.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Deposit account charge in the amount of \$504 is attached to cover the government fee for 6 extra independent claims.

Since the present claims set forth the present invention patentably and distinctly, and are not taught by the cited art either taken alone or in combination, this amendment is believed to place this case in condition for allowance and the Examiner is respectfully requested to reconsider the matter, enter this amendment, and to allow all of the claims in this case.

Respectfully submitted,
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by: _____
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CERTIFICATE OF MAILING UNDER 37 CFR SECTION 1.8(a)

I hereby certify that the accompanying AMENDMENT PURSUANT TO REQUEST FOR CONTINUED EXAMINATION (RCE) is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patent, P.O. Box 1450, Alexandria 22313-1450, on August 12, 2003.

Dated: August 12, 2003

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